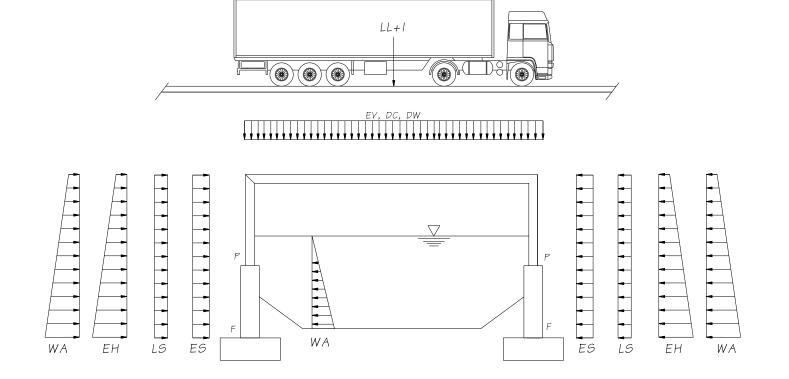


GEOMETRY



LOADING DIAGRAMS

P = PINNED CONNECTIONF = FIXED CONNECTION

GENERAL NOTES

- 1. THE FISH PASSAGE CULVERTS ARE BURIED STRUCTURES. THE DESIGN OF THE FISH PASSAGE CULVERTS SHALL COMPLY WITH THE CHAPTER 2 TECHNICAL PROVISIONS ON THE PROJECT IN ADDITION TO THE PROVISIONS BELOW. IN THE EVENT THAT THERE ARE CONFLICTING PROVISIONS, THE CHAPTER 2 TECHNICAL REQUIREMENTS GOVERN.
- 2. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2021, AND AMENDMENTS AS OF THE DATE OF THE CONTRACT.
- 3. THE CULVERT TO BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION.
- 4. THE CULVERT SHALL BE DESIGNED FOR SCOUR PER HYDRAULIC REPORT.
- 5. THE PRECASTER SHALL MODEL THE CULVERT AS A RIGID FRAME WITH A PIN CONNECTION BETWEEN BOTTOM OF CULVERT/TOP OF FOOTING AND AT THE TOP OF ANY WINGWALLS.
- 6. THE PRECAST CONCRETE SHALL BE CLASS 5000, 6000, OR 7000 SELF CONSOLIDATING CONCRETE (SCC). OTHER CONCRETE SHALL BE CLASS 4000, UNLESS NOTED OTHERWISE.
- 7. THE FABRICATOR SHALL DESIGN FOR LIFTING AND TRANSPORTING FOR SUBMITTAL PER STD. SPEC. SECTION 7-02.3(6)A2.
- 8. ALL STEEL PLATES AND SHAPES SHALL BE ASTM A36 OR ASTM A 992. ALL BOLTS, NUTS AND WASHERS (UNLESS NOTED OTHERWISE) SHALL BE ASTM A 307 AND COMPLY WITH STD. SPEC. SECT. 9-16.3(4), AND RESIN BONDED ANCHORS SHALL BE ASTM A 193 GRADE B7, OR ASTM A 449. ALL STEEL PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AFTER FABRICATION. BOLTS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232.
- 9. UNLESS OTHERWISE SHOWN IN THE PLANS, CONCRETE COVER MEASURED FROM THE FACE OF CONCRETE TO THE FACE OF ANY REINFORCING STEEL SHALL BE 2" AT THE TOP OF THE TOP SLAB, 11/2" AT THE BOTTOM OF THE TOP SLAB, 3" AT THE BOTTOM OF FOOTINGS, AND 2" AT ALL OTHER LOCATIONS.
- 10. THE BACKFILL ON BOTH SIDES OF THE CULVERT TO BE PLACED IN SEQUENCE AND COMPACTED IN ACCORDANCE TO THE STD. SPEC 2-09.3(1)E. THE MAXIMUM FIELD HEIGHT DIFFERENCE MEASURED FROM SIDE TO SIDE NO MORE 2'-0". IF THE CONTRACTOR WISHES TO EXCEED THIS DIFFERENTIAL, SUPPORTING EVIDENCE MUST BE SUBMITTED.

LOAD COMBINATIONS

THE BURIED STRUCTURES TO BE DESIGNED WITH THE LIMIT STATES SHOWN BELOW:

STRENGTH I = g p DC + g p DW+ 1.35/0.90 EH + 1.35/0.90 EV + 1.50/0.75 ES +1.75 LS + 1.75 (L+I) + 1.00 WA + 1.00 B + 0.50/1.20 TU SERVICE = 1.00 DC + 1.00 DW + 1.00 EH + 1.00 EV + 1.00 ES + 1.0 LS + 1.00 (L+I) + 1.00 WA + 1.00 B + 1.00/1.20 TU EXTREME | = 1.00 DC + 1.00 DW + 1.00 EH + 1.00 EV + 1.00 ES + 1.00 LS + gEQ L + 1.00 WA EXTREME | | = 1.00 DC + 1.00 DW + 1.00 EH + 1.00 EV + 1.00 ES + 1.00 LS + gEQ L + 1.00 WA

SE = FORCE EFFECT DUE TO SETTLEMENT

DW = DEAD LOAD OF WEARING SURFACE AND UTILITIES

DC = WEIGHT OF SUPERSTRUCTURE

EH = EARTH PRESSURE

EV = VERTICAL EARTH PRESSURE LL + I = LIVE LOAD PLUS IMPACT

LS = LIVE LOAD SURCHARGE WA = HYDRO-STATIC PRESSURE g p FOR DC = 1.25 MAX./0.90 MIN. g p FOR DW = 1.50 MAX./0.65 MIN.

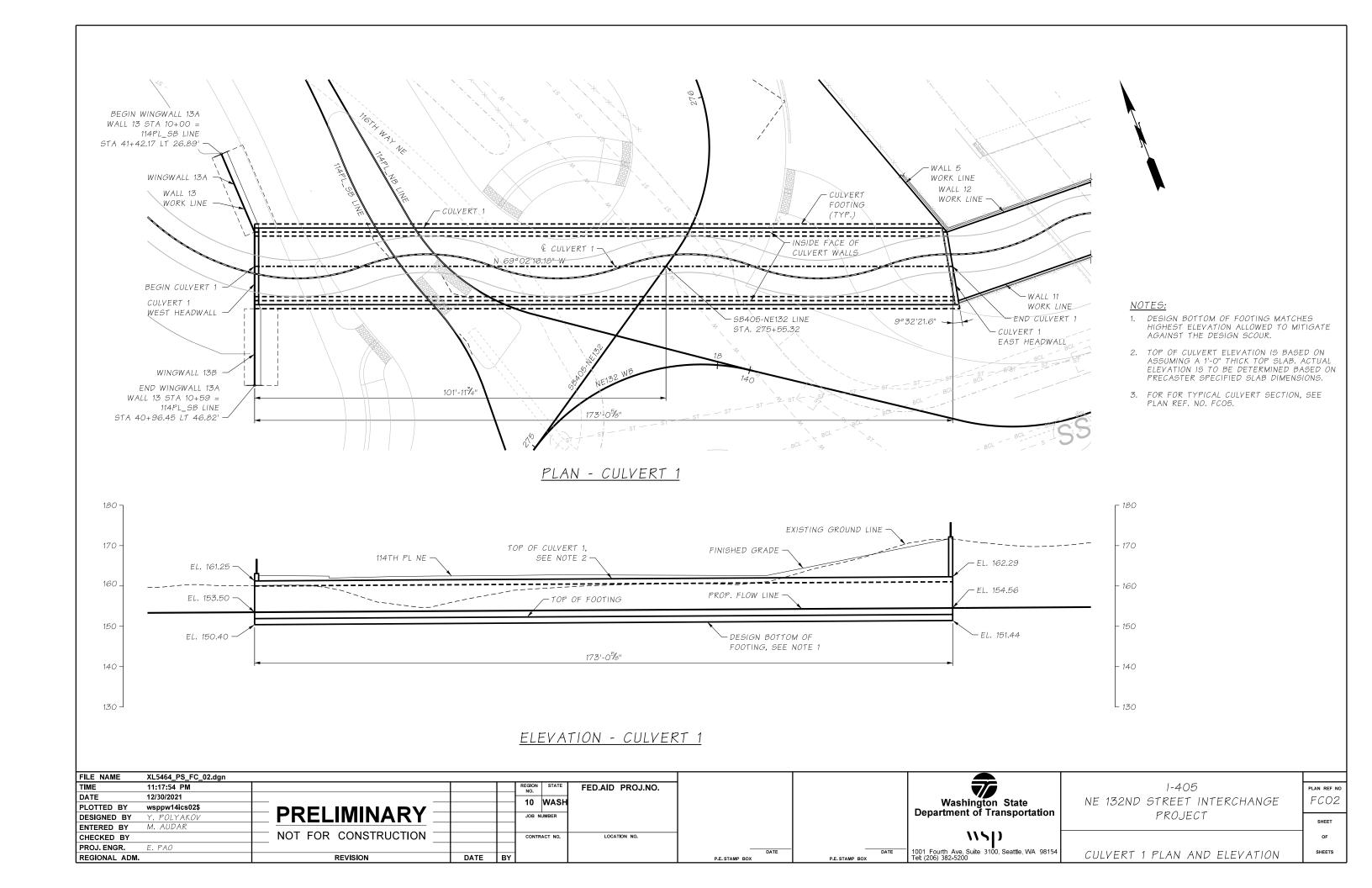
 $\emptyset = 1.00 FOR FLEXURE$

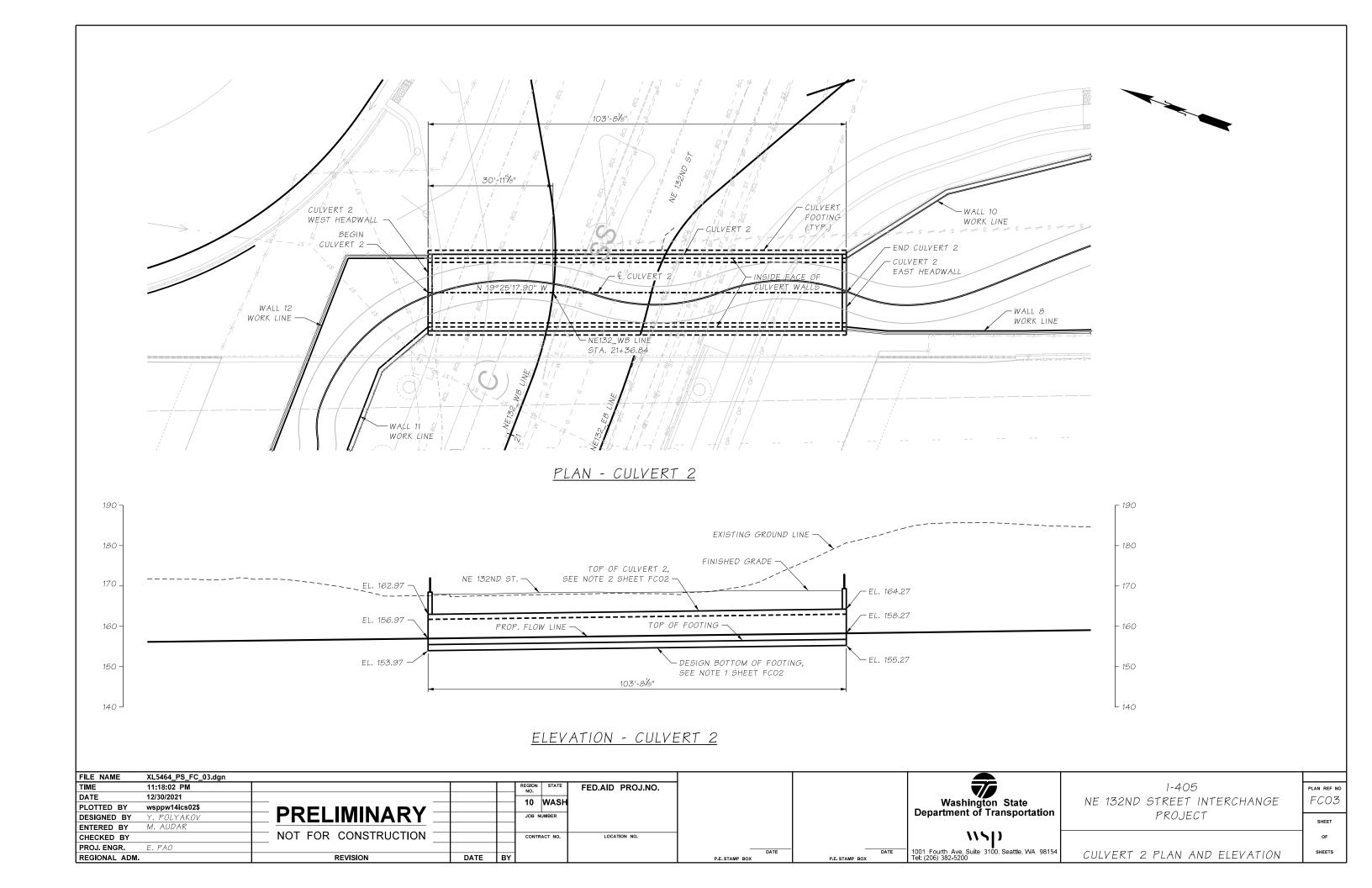
Ø = 0.90 FOR SHEAR

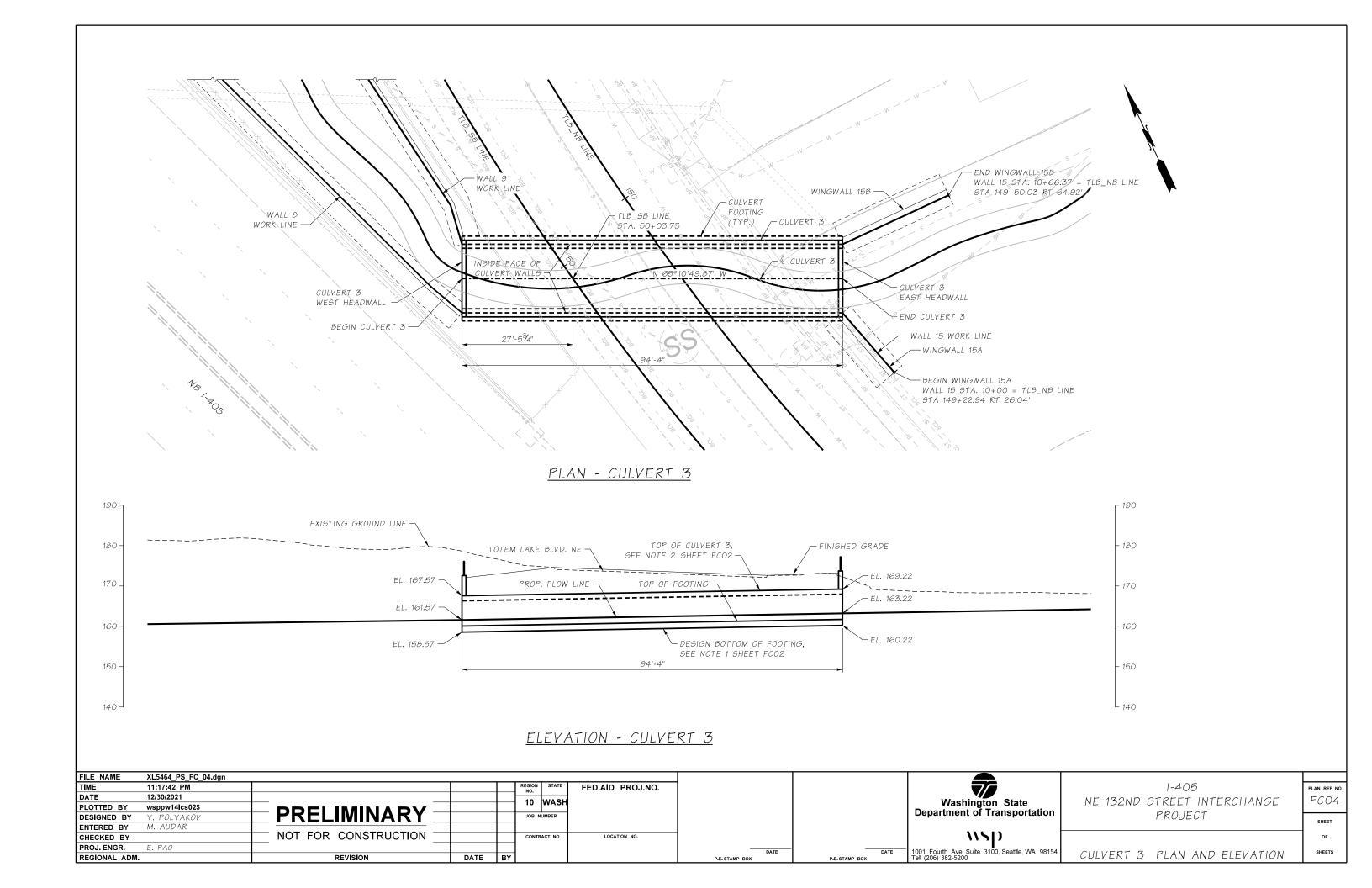
CT = VEHICULAR COLLISION FORCE

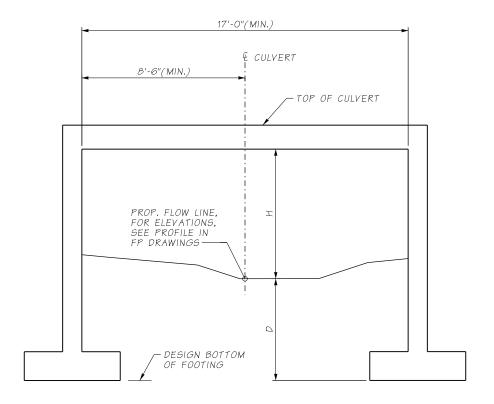
EXTREME II LIMIT STATE IS FOR VEHICULAR COLLISION

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PROJ. ENGR.	E. PAO					DATE	DATE	1001 Fourth Ave, Suite 3100, Seattle, WA 98154	CTUENAL MOTEC	SHEETS
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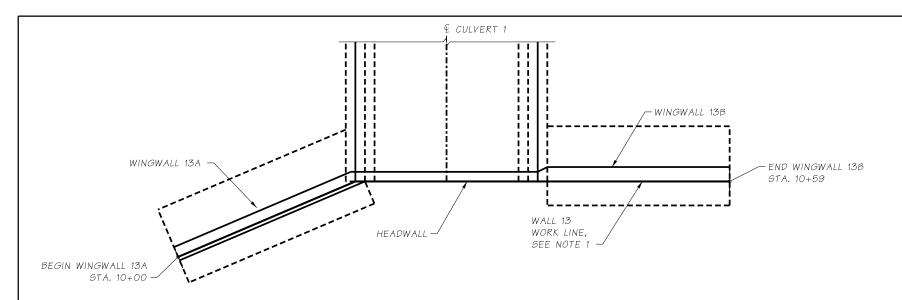


CULVERT MINIMUM DIMENSIONS								
	Н	D						
CULVERT 1	6.75'	3.1'						
CULVERT 2	5.00'	3.0'						
CULVERT 3	5.00'	3.0'						

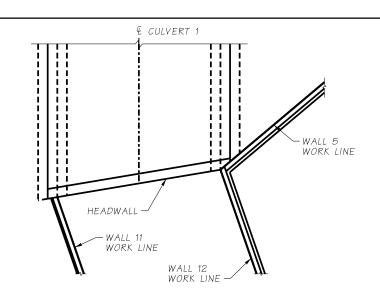
TYPICAL SECTION

TAKEN PERPENDICULAR TO CULVERT CENTERLINE

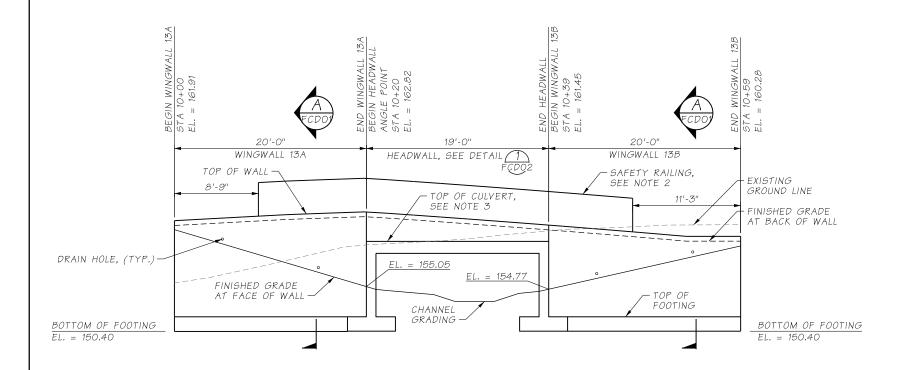
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REGIONAL ADM.		REVISION	DATE	BY			P.E. STAMP BOX	P.E. STAMP BOX	Tel: (206) 382-5200	CULVERT TYPICAL SECTION	J.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

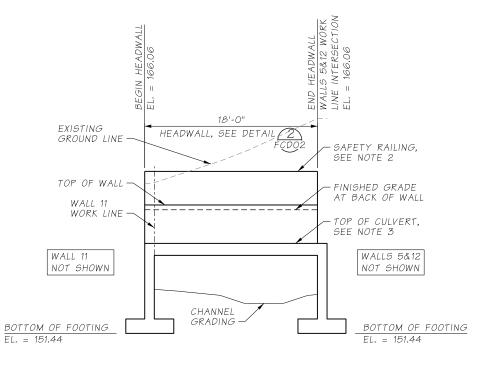


PLAN - CULVERT 1 WEST ENTRANCE



PLAN - CULVERT 1 EAST ENTRANCE





ELEVATION - CULVERT 1 WEST ENTRANCE

DEVELOPED ELEVATION ALONG WALL 13 WORK LINE

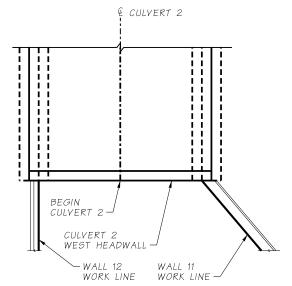
NOTES:

- 1. FOR WALL 13 ALIGNMENT DATA, SEE PLAN REF. NO. FCO2.
- 2. FOR SAFETY RAILING DETAILS, SEE PLAN REF. NO. WRD10 & WRD11.
- 3. FOR TOP OF CULVERT ELEVATION, SEE PLAN REF. NO. FCO2.

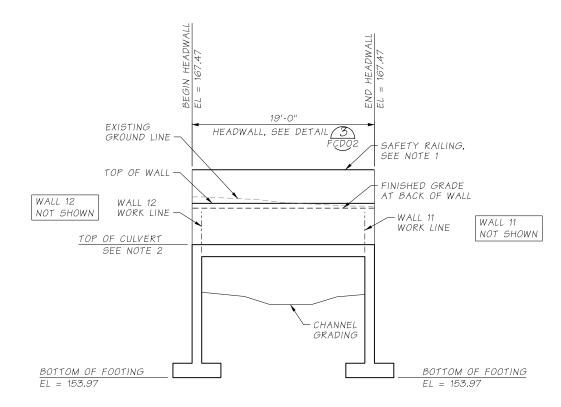
ELEVATION - CULVERT 1 EAST ENTRANCE

DEVELOPED ELEVATION ALONG EAST END OF CULVERT

FILE NAME	XL5464_PS_FC_06.dgn									
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DATE	12/30/2021	<u> </u>		10 WASH				Washington State	NE 132ND STREET INTERCHANGE	FC06
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DESIGNED BY	Y. POLYAKOV	$oxedsymbol{oxed}$ PRELIMINARY $oxedsymbol{oxed}$		JOB NUMBER				Department of Transportation	PROJECT	SHEET
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CHECKED BY		NOT FOR CONSTRUCTION		CONTRACT NO.	LOCATION NO.			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		OF
PROJ. ENGR.	E. PAO					DATE	DATE	1001 Fourth Ave, Suite 3100, Seattle, WA 98154		SHEETS
REGIONAL ADM	l.	REVISION	DATE BY			P.E. STAMP BOX		Tel: (206) 382-5200	CULVERT 1 WALL PLAN AND ELEVATION	J.IEE18

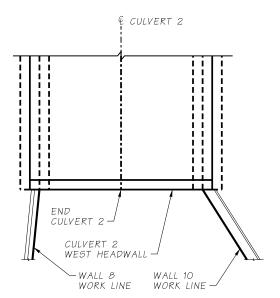


PLAN - CULVERT 2 WEST ENTRANCE

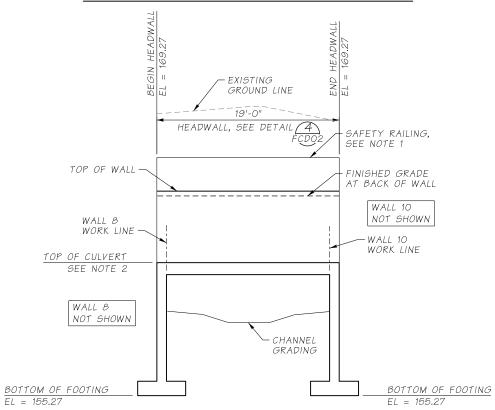


ELEVATION - CULVERT 2 WEST ENTRANCE

DEVELOPED ELEVATION ALONG WEST END OF CULVERT



PLAN - CULVERT 2 EAST ENTRANCE



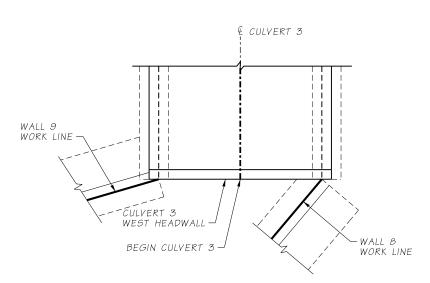
ELEVATION - CULVERT 2 EAST ENTRANCE

DEVELOPED ELEVATION ALONG EAST END OF CULVERT

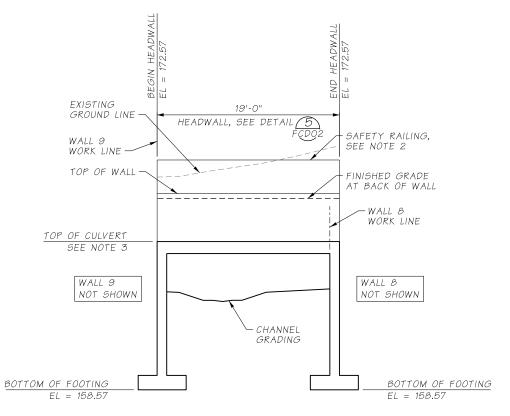
NOTES:

- 1. FOR SAFETY RAILING DETAILS, SEE PLAN REF. NO. WRD10 & WRD11.
- 2. FOR TOP OF CULVERT ELEVATION, SEE PLAN REF. NO. FCO3.

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PROJ. ENGR.	E. PAO					DATE	DATE	1001 Fourth Ave Suite 3100 Seattle WA 98154		SHEETS
REGIONAL ADM		REVISION	DATE	BY		P.E. STAMP BOX	P.E. STAMP BOX	Tel; (206) 382-5200	CULVERT 2 WALL PLAN AND ELEVATION	SHEETS



PLAN - CULVERT 3 WEST ENTRANCE



ELEVATION - CULVERT 3 WEST ENTRANCE DEVELOPED ELEVATION ALONG WEST END OF CULVERT

- WALL 15 WORK LINE, BEGIN WINGWALL 15A STA. 10+00 SEE NOTE 1 PLAN - CULVERT 3 EAST ENTRANCE END WINGWALL 15B STA. 10+66.37 SAFETY RAILING, SEE NOTE 2 28'-67/8" 19'-0" HEADWALL, SEE DETAIL FCDO? WINGWALL 15A WINGWALL 15B EXISTING 17'-21/4" GROUND LINE -TOP OF WALL -- FINISHED GRADE AT BACK OF WALL ANGLE POINT TOP OF CULVERT SEE NOTE 3 FINISHED GRADE AT FACE OF WALL-DRAIN HOLE, (TYP.)-└-EL = 164.38 EL = 164.07-CHANNEL GRADING - TOP OF FOOTING ВОТТОМ OF FOOTING OF FOOTING EL = 160.22 EL = 160.22 ELEVATION - CULVERT 3 EAST ENTRANCE DEVELOPED ELEVATION ALONG WALL 15 WORK LINE

CULVERT 3 - CULVERT 3 EAST HEADWALL

€ CULVERT 3

- WINGWALL 15B

NOTES:

- 1. FOR WALL 15 ALIGNMENT DATA, SEE PLAN REF. NO. FCO4.
- 2. FOR SAFETY RAILING DETAILS, SEE PLAN REF. NO. WRD10 & WRD11.

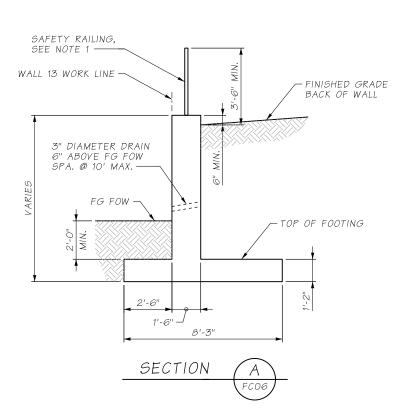
WINGWALL 15A

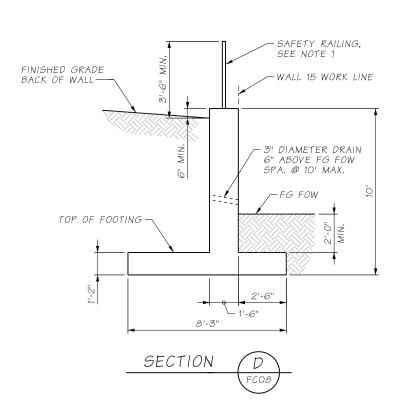
3. FOR TOP OF CULVERT ELEVATION, SEE PLAN REF. NO. FCO4.

FILE NAME	XL5464_PS_FC_08.dgn									
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PROJ. ENGR.	E. PAO					DATE	DATE	1001 Fourth Ave Suite 3100 Seattle WA 98154		, SHEETS
REGIONAL ADM].	REVISION	DATE	BY		P.F. STAMP BOX	P.F. STAMP BOX	Tel: (206) 382-5200	CULVERT 3 WALL PLAN AND ELEVATION	, 31,6518 /



1. FOR SAFETY RAILING DETAILS, SEE PLAN REF. NO. WRD10 & WRD11.





FILE NAME	XL5464_PS_FCD_01.dgn									
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PROJ. ENGR.	E. PAO					DATE	DATE	1001 Fourth Ave, Suite 3100, Seattle, WA 98154	CHIVERT WILLOWALL BETALLS	SHEETS
REGIONAL ADM	l.	REVISION	DATE	BY		P.E. STAMP BOX	P.E. STAMP BOX	Tel: (206) 382-5200	CULVERT WINGWALL DETAILS	SHEETS

